

BEEF BEND SOUTH URBAN RESERVE AREA

Total Acres	528	Parcel Acres	493
Gross Vacant Buildable Acres	282	Net Vacant Buildable Acres	214

General Description (see attached map)

The Beef Bend South Urban Reserve Area is a moderate sized area west of King City that is south of SW Beef Bend Road between SW Roy Rogers Road and SW 137th Avenue. The Tualatin River and SW Elsner Road form the southern boundary of the reserve area. The land is generally flat with some sloped areas adjacent to five streams that flow south towards the Tualatin River. Access to the area is provided by SW Beef Bend Road, SW 137th Avenue, SW Elsner Road and SW Roy Rogers Road.

Parcelization, Building Values, Development Pattern (see attached aerial photo)

This moderate sized reserve area contains 108 parcels that range in size from 3,000 square feet to 49 acres in size. Eighty percent of the parcels are less than five acres in size and only 12 parcels are greater than 10 acres. These 12 parcels account for 62% of the land area. The area contains rural residences on both small and larger lots, agricultural lands, forested parcels and a large scale retail nursery operation. Overall, 85 of the 108 parcels have improvements, with a median value of \$123,125. Bonneville Power Administration owns 4.3 acres of land along the eastern edge of the reserve area, which contains two power lines that run north-south. One parcel is included on Washington County's Rural and Natural Resource Plan as a Historic and Cultural Resource.

GOAL 14 LOCATIONAL FACTORS

Efficient accommodation of identified land needs

This reserve area is a mixture of relatively flat land along the eastern, northern and southern edges of the area with some areas of slopes greater than 25% along the stream corridors that limit both employment and residential opportunities in these specific locations. Eighty-eight of the parcels are less than five acres in size and 39 of those are less than one acre, which may inhibit the opportunity to consolidate parcels into significant blocks of land for development. However, the largest 12 parcels total over 308 acres and many of these parcels are located near SW Roy Rogers Road and SW Beef Bend Road which provides for ease of access and extension of utilities from adjacent roadways. While an employment use may be possible from a topographic stand point this portion of the reserve area is a considerable distance from the highway system which may lessen the appeal for employment uses. Thus this reserve area is able to accommodate a residential land need.

Orderly and economic provision of public facilities and services

Sanitary Sewer Services

Capacity of existing facilities to serve areas already inside the UGB

Clean Water Services (CWS) provides wastewater treatment through the Durham Waste Water Treatment Plant which has capacity to serve the lands inside the UGB. CWS is currently working to complete significant capital improvements relating to their conveyance piping that are necessary to serve the land currently within the UGB. These improvements are scheduled to be fully complete in 2020.

Capacity of existing facilities to serve areas proposed for addition to the UGB

Flows from reserve area will connect to an existing gravity sewer in a development along the east boundary of the reserve area at SW Fischer Road. The existing sewer is currently an 8-inch line; however, CWS has plans to upsize this line to a trunk line in the future. This line connects to an existing 18-inch trunk line in SW 131st Ave, and from there flows via gravity through the CWS interceptor to the Durham treatment plant. The available capacity of the existing lines is unknown at this time.

Impacts to existing facilities that serve nearby areas already inside the UGB

CWS has indicated some interceptor and/or trunk lines that are at or near capacity today are being upgraded to serve the lands within the Cooper Mountain and River Terrace areas. These new facilities may have capacity for additional development, but the amount of excess capacity is not known at this time. Other impacts to the wastewater system are local in nature, occurring as facilities are developed. New wastewater mains must be provided and the laterals off the mains are provided by the development community. From the connection to the existing system, sewer flows by gravity to the treatment plant, however in order to get sewer to the connection point, up to four pump stations within the reserve area may be needed.

Sanitary Sewer Piping Costs

Sanitary sewer piping costs	Cost (in millions)
Less than 12" pipe (gravity)	\$2.12
12 – 18" pipe (gravity)	\$1.26
Force Main	\$1.70
Pump station	\$1.20
Total	\$6.28

Water Distribution Services

Capacity of existing facilities to serve areas already inside the UGB

The Tigard Water District, along with the Cities of Durham, King City and Tigard has an Intergovernmental Agreement (IGA) with the City of Tigard to serve the nearby areas already inside the UGB. This is known as the Tigard Water Service Area (TWSA). Information provided by the City of Tigard indicates that the water supply, storage, and piping are sufficient to serve the existing UGB. Minor deficiencies were identified with the water treatment plant; however, there are plans to correct the deficiencies in the near future.

Capacity of existing facilities to serve areas proposed for addition to the UGB

Water supply appears to be adequate, or the City of Tigard will be able to provide water as this area is urbanized. The City of Tigard is currently in the process of updating its water master plan. The master plan update will include this reserve area as well as the Roy Rogers East and the Roy Rogers West urban reserve areas. The master plan will identify excess capacity within the system and determine if it can be used within the reserve areas. In addition, the City plans to acquire property in the adjacent River Terrace area that can be used for the construction of additional storage to serve the reserve areas.

Impacts to existing facilities that serve nearby areas already inside the UGB

The City of Tigard is currently updating the water master plan which includes planning for the reserve area. Water capacity appears to be adequate and the majority of impacts are local in nature, occurring as facilities are developed. New water mains must be provided to allow development of this reserve area and the laterals off the mains are provided by the developer. The amount of any upsizing that would be needed is not known at this time, but will likely be identified in the master plan update

Water Costs

Water piping/storage/pumping costs	Cost (in millions)
12" and smaller	\$2.52
18" and larger	\$5.56
Storage/pumping	\$2.8
Total	\$10.88

Storm Sewer Services

Capacity of existing facilities to serve areas already inside the UGB

There is no indication of capacity issues with existing stormwater facilities that serve the land inside the UGB.

Capacity of existing facilities to serve areas proposed for addition to the UGB

Stormwater will be conveyed, treated, and disposed of within the reserve area, therefore, it is not anticipated that existing facilities would be utilized

Impacts to existing facilities that serve nearby areas already inside the UGB

Stormwater will be conveyed, treated, and disposed of within the reserve area; therefore, no impacts to existing facilities are anticipated.

Storm sewer conveyance and water quality/detention costs for roadways

Conveyance & water quality/detention costs	Cost (in millions)
Conveyance	\$7.6
Water quality/detention	\$7.31
Total	\$14.91

Transportation Services

Capacity of existing facilities to serve areas already inside the UGB

Roadway: All of the roads in King City have an acceptable volume/capacity ratio (<0.9) for the 2015 pm peak. Highway 99W at SW Tualatin Road in Tualatin has a congested volume/capacity ratio (<1.0) in both directions. Highway 99W at SW Beef Bend Road in Tigard also has a congested volume/capacity ratio in both directions. Highway 99W is considered a high injury corridor for automobiles.

Transit: Two TriMet bus routes travel Highway 99W adjacent to King City. Route 93 provides service between Sherwood and the Tigard Transit Center and Route 94 provides service between Sherwood and Tigard/Portland. Both routes provide connections to the WES Commuter Rail at the Tigard Transit Center.

Bike: King City has two streets considered bike friendly, SW 131st Ave and SW Fischer Road, which provides a connection to the dedicated bike lanes on Highway 99W. There is a bike lane on SW Durham Road that extends east of Highway 99W and connects to numerous bike friendly streets. SW Colyer Way, SW Peachtree Drive and SW Greenfield Drive are also considered bike friendly streets that head north of SW Beef Bend Road and connect to the dedicated bike lane on SW Bull Mt. Road.

Pedestrian: The vast majority of the residential neighborhoods in King City have sidewalks with the exception of the Eldorado Mobile Villas. There are sidewalks in most of the residential developments on the north side of SW Beef Bend Road in Tigard and in unincorporated Washington County. There are sidewalks along the northbound lanes of Highway 99W that connect to the sidewalks along SW Durham Road and the residential areas to the east.

Capacity of existing facilities to serve areas proposed for addition to the UGB

Roadway: All of the roads in King City have an acceptable volume/capacity ratio (<0.9) for the 2015 pm peak including SW Beef Bend Road which is the main access route. Highway 99W at SW Tualatin Road in Tualatin has a congested volume/capacity ratio (<1.0) in both directions. Highway 99W at SW Beef Bend Road in Tigard also has a congested volume/capacity ratio in both directions. SW Roy Rogers Road which is outside the UGB also has a congested volume/capacity ratio in both directions between SW Beef Bend Road and SW Bull Mt. Road.

Transit: No TriMet bus routes travel close to the reserve area. The closest transit stops for routes 93 and 94 are just short of $1\frac{1}{2}$ miles from the reserve area via SW Beef Bend Road.

Bike: The two bike friendly streets in King City, SW 131st Ave and SW Fischer Road, are about $\frac{1}{3}$ rd of a mile from the edge of the reserve area. SW Colyer Way and SW Peachtree Drive the bike friendly streets that head north of SW Beef Bend Road and connect to the dedicated bike lane on SW Bull Mt. Road are located adjacent to the east edge of the reserve area along SW Beef Bend Road which is considered a bike with caution street.

Pedestrian: None of the sidewalks in the residential areas of King City connect to the reserve area. There are three roads with sidewalks on the north side of SW Beef Bend Road that are across from the reserve area; however SW Beef Bend Road itself does not have sidewalks along the edge of the reserve area. The sidewalks to the north are generally internal circulation walkways within the residential neighborhoods.

Impacts to existing facilities that serve nearby areas already inside the UGB

Roadway: It is expected that SW Beef Bend Road will see increased traffic as a result of urbanization of the reserve area. This could lead to increased traffic on Highway 99W that may increase congestion issues at SW Tualatin Road in Tualatin and at SW Beef Bend Road in Tigard where currently the highway has a congested volume/capacity ratio in both directions. In addition SE Roy Rogers Road outside the UGB would be expected to see increased traffic which may increase congestion issues between SW Beef Bend Road and SW Bull Mt. Road.

Transit: There is no impact to current TriMet bus routes. See transit analysis below.

Bike: In order for bike friendly streets SW 131st Ave and SW Fischer Road to see an increase in use the $\frac{1}{3}$ rd of a mile gap from the edge of the reserve area will need to be completed. SW Colyer Way and SW Peachtree Drive, the bike friendly streets that head north of SW Beef Bend Road and connect to the dedicated bike lane on SW Bull Mt. Road may see additional use; however the bike lane on SW Bull Mt. Road is not continuous and generally connects only to residential neighborhoods. In addition, portions of these routes are fairly steep.

Pedestrian: The gap in sidewalks between the reserve area and the residential areas of King City would need to be connected in order to see an increased use. Even with the connection the increased in use would probably be small given that they ultimately lead to busy Highway 99W. The three roads with sidewalks on the north side of SW Beef Bend Road that are across from the reserve

area may see an increase in use however the sidewalks are generally internal circulation walkways within the residential neighborhoods and some are fairly steep.

Need for new transportation facilities and costs (see attached transportation map)

SW Beef Bend Road and SW Roy Rogers Road will need to be improved to urban arterial standards. SW Beef Bend Road is considered a ½ street improvement as the Roy Rogers East urban reserve or the land already inside the UGB would be responsible for the other half of the roadway. SW Elsner Road, SW River Lane, SW 137th Ave and SW 150th Ave would need to be improved to urban collector standards. Four new collector roads are needed to provide additional north-south and east-west road connections.

Facility Class		
Arterials	Type	Cost (in millions)
	Existing/Improved	\$22.98
	Existing/Improved 1/2	\$28.48
Collectors	Type	Cost (in millions)
	Existing/Improved	\$67.11
	New	\$59.72
Total		\$178.29

Provision of public transit service

TriMet evaluated the reserve area for providing transit service. TriMet could provide services to the reserve area although there is no guarantee of service. Actual service depends on the level of development in the expansion area and in the corridors leading to the reserve area. Service could be provided at 30 minute headways for all day service, five days a week with one additional bus at a capital cost of \$400,000 (recurs every 16 years). Annual service cost is \$416,000 and grows 2% per year.

Prior to land being included in the UGB a more detailed concept plan, consistent with the requirements of Metro's Urban Growth Management Functional Plan Title 11, will be required. This concept plan process will develop more refined public facility and service needs and cost estimates.

Comparative environmental, energy, economic and social consequences (ESEE analysis)

Environmental

Five streams flow south through the urban reserve area ultimately draining into the Tualatin River. GIS data indicates a sixth stream flowing through the nursery property but aerial photos do not show the presence of a stream. The westernmost stream flows south along SW Elsner Road for approximately 1,200 feet before crossing under the road and continuing to the southern edge of the area. This lower stream segment is approximately 1,235 feet in length and flows through forested land. There are areas of riparian and upland habitat associated with the stream corridor. The portion of the stream that flows adjacent to SW Elsner Road would be susceptible to impacts

related to road improvements necessary to meet urban road standards. The lower portion of the stream is less susceptible to impacts given the increased protection levels for streams and habitat areas within the UGB.

The second stream originates in the Bull Mountain area north of SW Beef Bend Road, crosses under SW Danube Drive and flows through a forested ravine for approximately 1,950 feet. There are areas of riparian and upland habitat associated with the stream corridor. The portion of the stream that crosses under SW Danube Drive would be susceptible to minor impacts related to road improvements necessary to meet urban road standards. The lower portion of the stream is less susceptible to impacts given the increased protection levels for streams and habitat areas within the UGB.

The third stream to the east flows through a forested area for approximately 1,360 feet before joining the Tualatin River. There are areas of riparian and upland habitat associated with this stream corridor that flows through a ravine with slopes greater than 25%. The steep slopes will provide an additional level of protection beyond the increased protection levels for streams and habitat areas within the UGB, which reduces the potential for impacts from urbanization.

The fourth stream originates in the Bull Mountain area north of SW Beef Bend Road and flows through a forested ravine with slopes greater than 25% for approximately 1,780 feet before flattening out for the last 500 feet near the Tualatin River. This lower section of the stream is within the floodplain of the Tualatin River. The stream also has areas of riparian and upland habitat associated with it. The steep slopes will provide an additional level of protection beyond the increased protection levels for floodplains, streams and habitat areas within the UGB, which reduces the potential for impacts from urbanization. However there are potential impacts from east-west roadway connections that could impact the stream and habitat areas.

The fifth stream flows west from the eastern boundary and then south to the Tualatin River through a forested landscape for 2,380 feet. There are slopes greater than 25% along the first 1,600 feet of the stream with the remaining portion flowing through flatter land that is also within the floodplain of the Tualatin River. Similarly there are areas of riparian and upland habitat associated with this stream corridor. Given the increased protection levels for floodplains, streams and habitat areas within the UGB and the additional protection from the steep slopes along the upper stream segment, urbanization could occur without significant impacts to this stream. However there are potential impacts from east-west roadway connections that could impact the stream and habitat areas. The Tualatin River flows along the southern edge of the reserve area for approximately 1.3 miles. There is a significant area of 100-year floodplain along the entire river edge, which is also identified as riparian habitat. This riparian habitat area also includes a 0.24 acre wetland. Given the increased protection levels for floodplains, streams and habitat areas within the UGB, urbanization could occur without significant impacts to the Tualatin River. Overall urbanization of the area could occur with moderate to high impacts to the river and stream corridors and habitat areas depending on additional street connectivity requirements. Most significantly though, the stream segment that flows adjacent to SE Elsner Road and the stream that crosses under SW Danube Drive will be impacted by necessary improvements to these roadways.

Energy, Economic & Social

The north-south running stream corridors reduce the amount of development that can occur and forces a segmented development pattern, resulting in a significant amount of land that will stay in a natural state, thus reducing the social impacts of a loss of sense of place from urbanization on the existing residents of the area. In addition, most of the existing rural residences are located in the eastern portion of the reserve area on smaller lots that are in the floodplain, which reduces the amount of future infill development that could occur, also reducing social impacts of urbanization on the existing residents. The additional traffic generated through urbanization will impact SW Beef Bend Road, SW Roy Rogers Road and ultimately Highway 99W which could provide negative energy impacts as these roadways are highly traveled. However, the planned Westside Trail would run along the power lines on the eastern edge of the reserve area and the planned River Terrace Trail would run along SW Beef Bend Road, providing trail connection points that could reduce some local automobile trips, thereby reducing VMT. The agricultural activity within the reserve area is concentrated in a few locations and the loss of the economic impact from these agricultural uses would be minor, however the potential loss of the large retail nursery operation would be significant. The potential economic impact of residential development may outweigh this loss. Overall this analysis area has medium economic, social and energy consequences from urbanization.

Compatibility of proposed urban uses with nearby agricultural and forest activities occurring on farm and forest land outside the UGB (see attached resource land map)

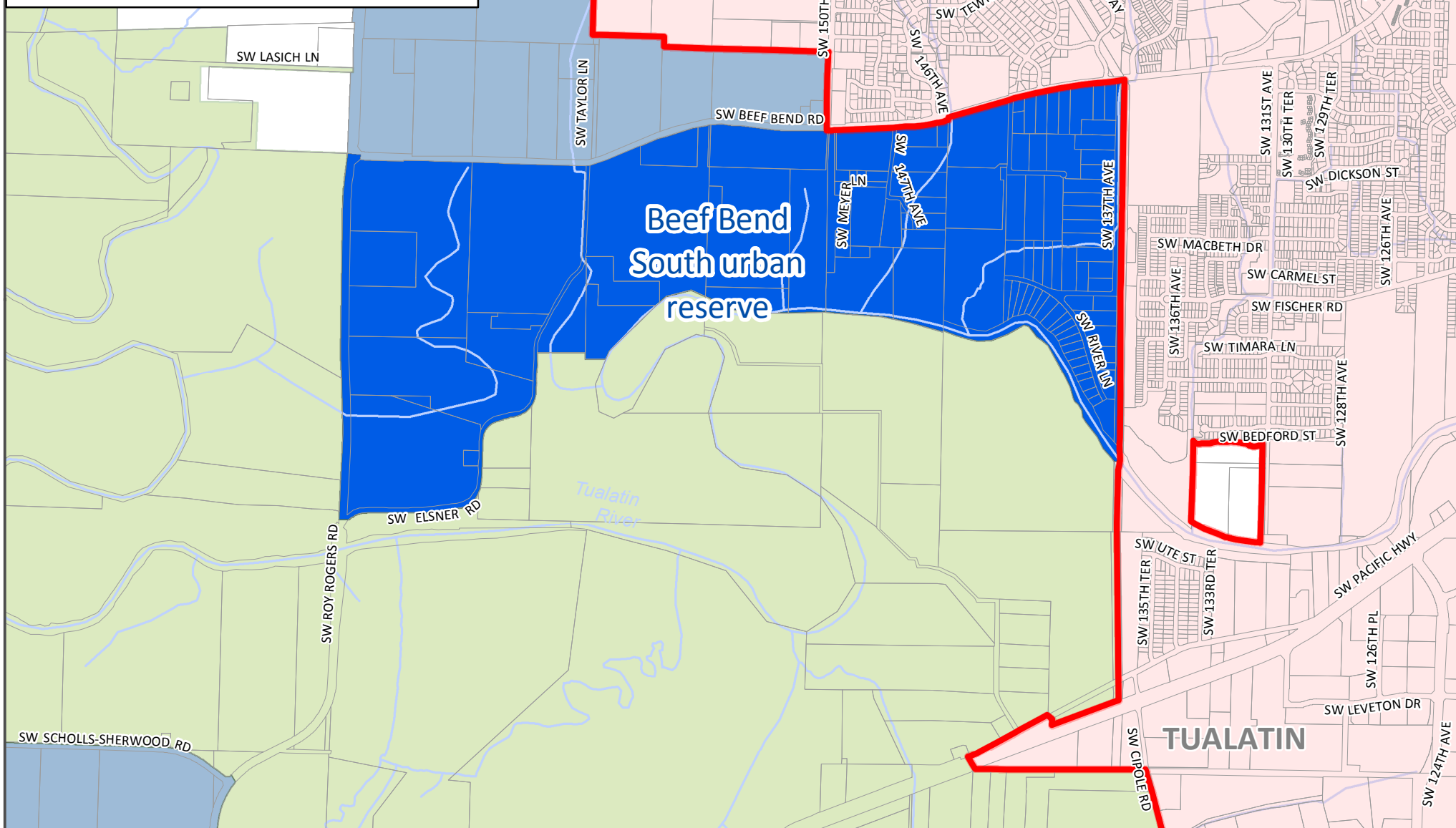
Farm and forest land borders a portion of the reserve area to the north and completely to the south and west. On the north side is a 187 acre block of Exclusive Farm Use (EFU) zoned land that is separated from the reserve area by SW Beef Bend Road. Most of the land is in some level of small scale agricultural production, including field crops, row crops and pasture land. The remaining land is forested and includes rural residences as well. SW Beef Bend Road provides a buffer between the agricultural activities occurring in this location and the proposed urban uses, however the road alone would not make the two uses compatible and there could still be complaints due to noise, odor, dust and the use of pesticides and fertilizer. The limited amount of agricultural activity would lessen the overall impact. The improvement of SW Beef Bend Road to urban standards includes its own set of compatibility issues related to street light illumination, weeds and pedestrian movements that can reduce compatibility between the two uses, some of which may be addressed through road design. Urbanization of the reserve area would significantly increase traffic on SW Beef Bend Road and SW Roy Rogers Road which could impact the movement of both farm equipment and goods. The proposed urban uses are not compatible with the small scale agricultural activities occurring on this block of farm land. Mitigation measures on the urban side could be used to reduce conflicts between the urban uses inside the UGB and farm and forest activities occurring on resource land outside the UGB.

To the west is a significant block of EFU zoned land that extends both north and west, well beyond the Tualatin River, which provides a buffer for the farm land further west. The 185 acre block of EFU land between the Tualatin River and SW Roy Rogers Road that is directly adjacent to the

reserve area contains some agricultural activities as well as a rural residence. The vast majority of the farm land is part of the Tualatin River National Wildlife Refuge. More intense agricultural activities are occurring on the land to the north. The significant right-of-way of SW Roy Rogers Road would provide a buffer between the agricultural activities occurring in this location and the proposed urban uses, however the road alone would not make the two uses compatible and there could still be complaints due to noise, odor, dust and the use of pesticides and fertilizer. In addition, the improvement of SW Roy Rogers Road to urban standards includes its own set of compatibility issues related to street light illumination, weeds and pedestrian movements that can reduce compatibility between the two uses, some of which could be addressed through road design. Urbanization of the reserve area would significantly increase traffic on SW Beef Bend Road and SW Roy Rogers Road which could impact the movement of both farm equipment and goods, which may impact the EFU lands to north more. Mitigation measures on the urban side could be used to reduce conflicts between the urban uses inside the UGB and farm and forest activities occurring on resource land outside the UGB. Thus the proposed urban uses are somewhat compatible with the nearby agricultural activities occurring on this block of farm and forest land due to the large right-of-way of SW Roy Rogers Road and depending on mitigation efforts.

To the south is a significant block of EFU zoned land that extends all the way to Highway 99W. Also located to the south is a 74 acre block of Agriculture Forest (AF20) open space land that is owned by Metro. The vast majority of this farm land is part of the Tualatin River National Wildlife Refuge and is not in agricultural production. In addition the Tualatin River provides a large buffer for the portion that is being farmed. There is an 80 acre block of EFU land that is east of SW Elsner Road between a large bend in the Tualatin River. There are four rural residences that front on to SW Elsner Road that provides a buffer to the limited agricultural activities that occur away from the road. Increased traffic on SW Elsner Road could slightly impact the movement of both farm equipment and goods from this limited agricultural area. Thus the proposed urban uses are mostly compatible with the limited agricultural activities occurring on this small block of farm and forest land.

In summary, the proposed urban uses in the northern and western portions of the reserve area are somewhat compatible with nearby agricultural and forest activities occurring on farm and forest land outside the UGB depending on the mitigation measures implemented. Urbanization of the southern portion of the reserve area would be more compatible with nearby agricultural and forest activities occurring on farm and forest land outside the UGB. Overall, the proposed urban uses are moderately compatible with nearby agricultural and forest activities occurring on farm and forest land outside the UGB with the implementation of mitigation measures.

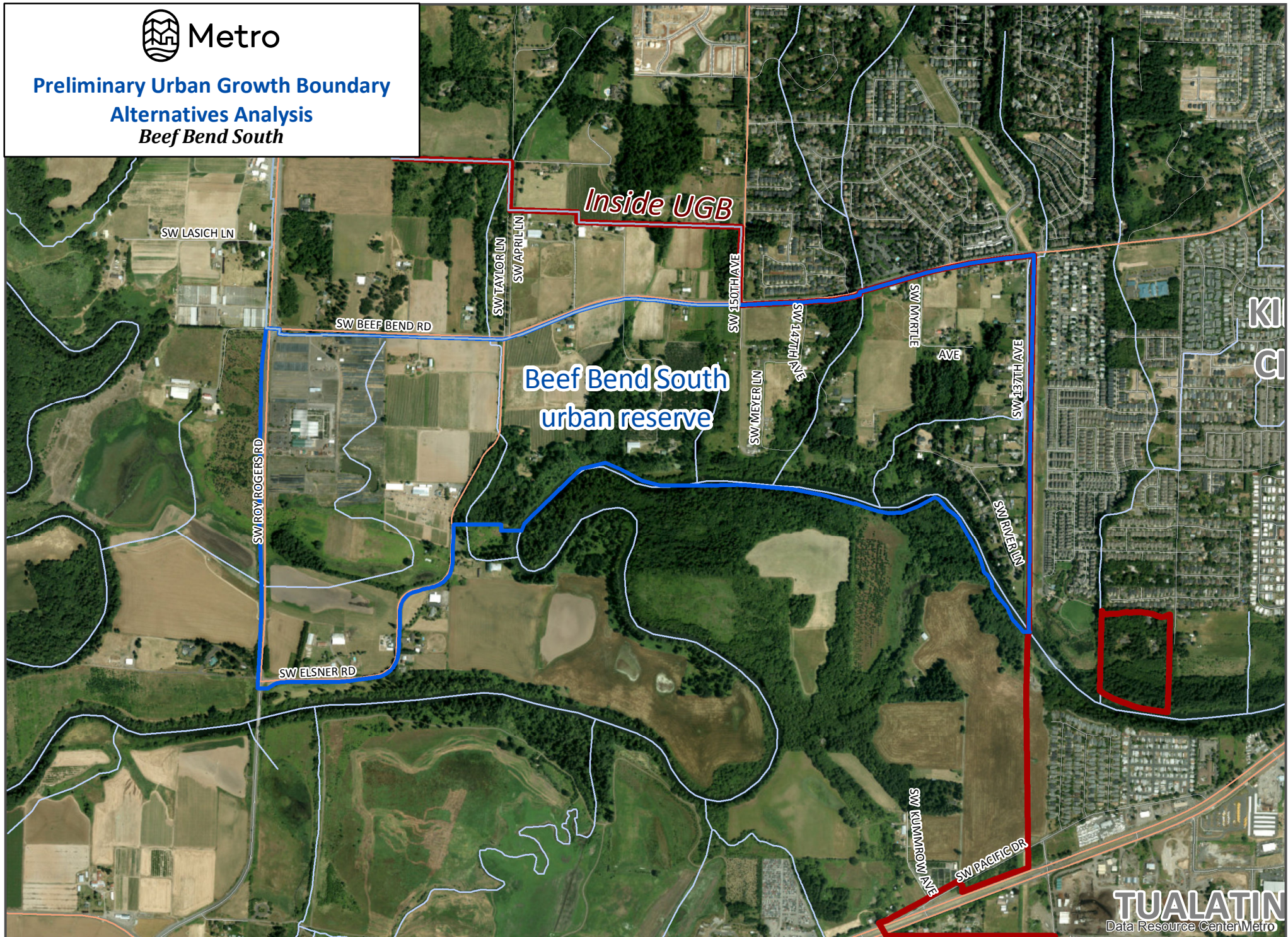


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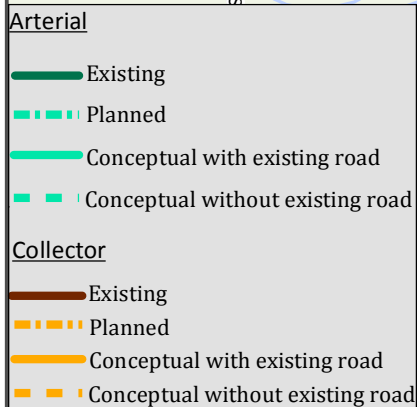
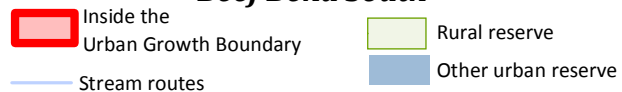


Metro

Preliminary Urban Growth Boundary
Alternatives Analysis
Beef Bend South



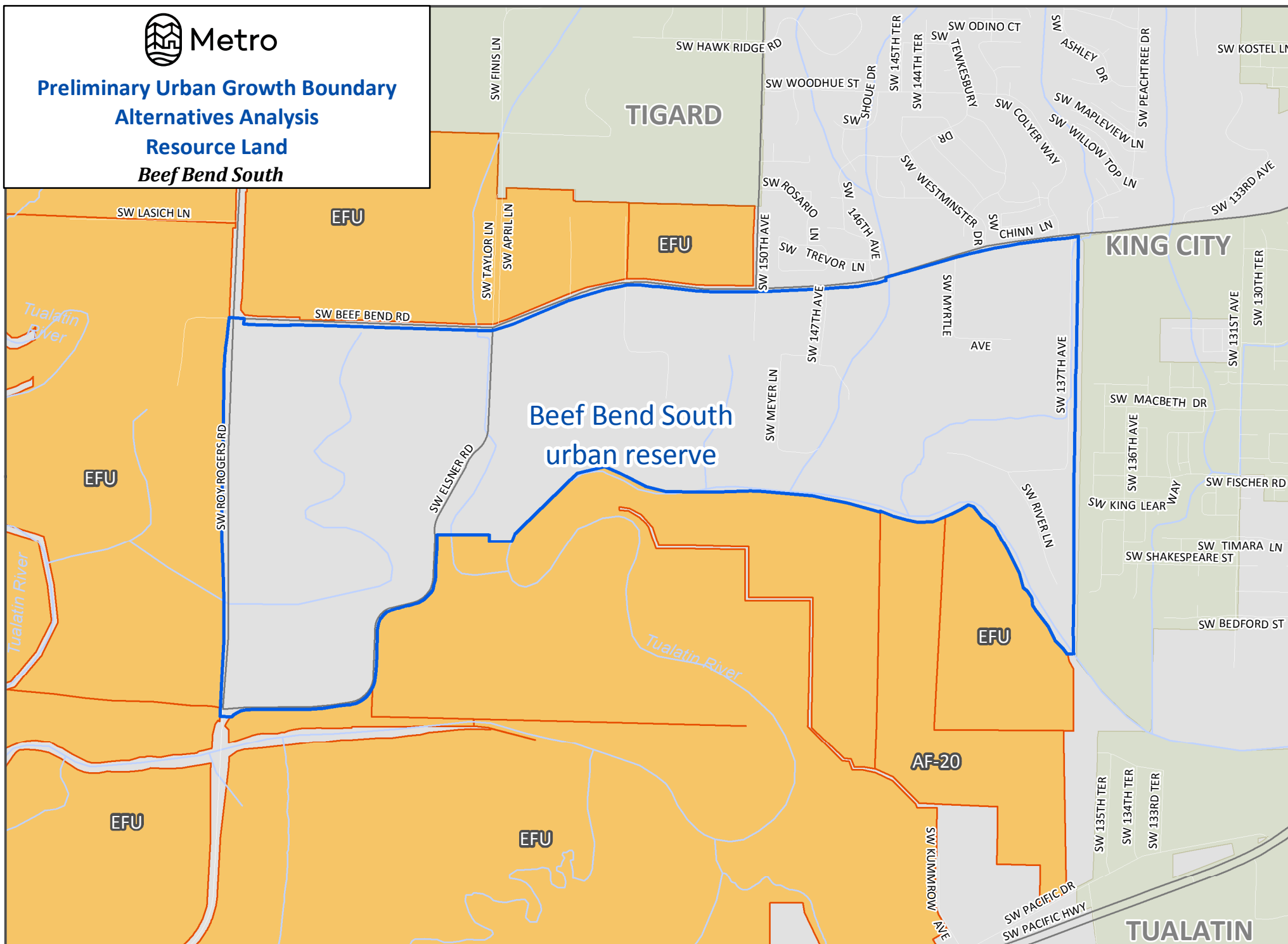
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**Preliminary Urban Growth Boundary
Alternatives Analysis
Resource Land
*Beef Bend South***



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